Simulation scenario rehearsal: the key to successful and effective simulations

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> "All the real work is done in the rehearsal period."
>
> The late British actor, Donald Pleasence

The key to successful and effective execution of simulation cases is rehearsal. This is the distinct area where those programmes and faculty who regularly make running complex high-fidelity simulations look effortless distinguish themselves. This flawless execution is not the manifestation of expensive simulators, large fully equipped simulation labs or a huge cadre of simulation support staff. Rather, it is the ability of the simulation team to come together before the execution of the simulation scenario to ensure a unified vision, in both the creative and technical aspects of the case (see figure 1). This requires the development of an atmosphere of creativity, openness to new ideas to improve the case and the strong desire to execute outstanding simulations. This is also the area that is frequently overlooked by many as an unnecessary use of time and only essential for elaborate or special simulation cases.

Outstanding simulations require more than well-written cases. While the case serves as the script for the confederates and the technicians, it does not ensure effective execution of a case. The rehearsal, however, is not just about practising lines, it provides a forum for the confederates to develop a complementary relationship with one another to bring the scenario to life, increasing the fidelity for the learner. It allows a period of discovery and experimentation where the confederates can see what works and what does not. It provides an opportunity for the technician or faculty member, who will potentially serve as the voice of the patient (if using a simulator), to interact with the confederates in a way that fulfils the vision of the simulation director. Despite the importance of this concept, and its frequent application by highly seasoned or fellowship trained simulation directors, there is a lack of description of this critically important activity in the simulation literature or simulation textbooks. The discussion of the methods of executing very realistic and effective simulations has recently taken a backseat to the importance of effective debriefing. While debriefing remains the most critical aspect of the simulation experience,[1] very little has been described about how to maximise the quality of the immersive simulation experience. The best simulations combine extremely well-executed high-fidelity simulations paired with expert debriefers who are also content experts in the cases being run. The purpose of this editorial is to both serve as a reminder of the importance of this rehearsal period as an avenue to the execution of outstanding simulations and as a 'how to' for those who do not typically undertake this exercise prior to simulations.

Rehearsal is typically best performed 1–2 days before the actual simulation to ensure that the team keeps the newly discovered dynamic and modifications of the case in the forefront of their mind. Additionally, it provides enough time to ensure that appropriate simulators, personnel and equipment are available and functional. Getting to the simulation lab 30 min before the learners and quickly re-reading the case and setting up the manikin does not qualify as an effective rehearsal. This type of time pressure does not provide an atmosphere needed for creativity or a unified vision between the faculty, confederates and technicians. It rather creates a sense of urgency of performing the bare minimum in terms of ensuring the functionality of the equipment and identifying if staff have shown up and are familiar enough with the case to execute it in a few short minutes. It provides minimal opportunity to fix or identify faulty equipment, ask clarifying questions about the script or attempt to develop some sense of character cohesiveness if there is more than one confederate.

This 30–60 min time frame prior to case execution should ideally be utilised for a last minute walk through, system checks and re-rehearsing difficult lines. This time period should be used to ensure that all equipment and materials are prepared. Confederates can quickly review their lines, allowing time for the simulation technicians to perform a last minute check of the simulators, interconnectivity, ensure that the learning management system cameras are operational and that last minute details (moulage, defibrillators, airway boxes, crash cart medications etc) are perfect.

Creative	Technical
Provides low stress opportunity to make last minute changes to enhance the case presentation	Understanding of anticipated branch points for changes in physiologic response to learners management
Costumes and moulage for ESPs and simulators	Ensures equipment availability and functionality
Ensures team is clear on case learning objectives (ESPs, faculty, technicians)	Images, unexpected images, and equipment preparation (X-rays, EKG's, CT scans, crash cart medications, etc.)
Timing of entry/exit of ESPs, dialogue rehearsal and response to anticipated learner's questions and management	Ensuring appropriate level of patient mental status, voice, in conjunction with progression of case branch points (e.g., decreasing level of consciousness)
Practice and calibrate ESPs emotional response	Discuss setup and breakdown transition during faculty debriefing for repeat cases

Figure 1 Creative and technical aspects typically reviewed during simulation scenario rehearsal. ESP, embedded simulation participant.

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A typical rehearsal should start with a table read, allowing the team members and the simulation director to have an informal read through the case scenario. This is the time the simulation director needs to identify the need for the team to critically read the script to ensure the case is fair for the level of the learners participating, is logistically feasible given the size and scope of the available simulation team and number of learners, determining who will be playing what roles during the scenario(s), and if any special equipment or moulage is required for the case. Additional logistics to consider include who will be resetting up the simulation environment during the faculty led debriefing for repeat simulations and how the learners will move through the simulation facility if they are transitioning to different stations within the lab.

After this read through, the team should transition to the bedside of the simulator and start the walk through of the scenario, having an individual acting as they would expect an 'average' learner would navigate the case (not perfect management, meeting most critical actions but still making a few errors). Ideally, having a learner from the cohort acting in the role of the learner (eg, a resident rotating on an elective simulation rotation) provides an outstanding opportunity to identify unexpected requests or questions during the case. This provides a low-stress opportunity for each individual involved in the scenario to go through the motions of reading through their lines, ensure equipment is appropriately placed in the physical environment, equipment is available, simulators are functioning and to make sure confederates (emergency medical services, nurses and family members) know when to enter and leave the scenarios.

Additionally, the rehearsal is not about simply reciting lines from a script. The objective is for the confederates to establish their characters relationship with the other confederate(s). If the confederate is a medic giving report to a confederate nurse while dropping off the patient, while the learners are listening and watching, this interaction needs to seem natural and seamless. Dialogue that does not sound natural or realistic should be changed during this rehearsal period. This is the time to identify problems with the script and do last minute re-writes to ensure that the final performance is smooth. The simulation director needs to step back and assess if the story is working, take notes where there is potential awkward silence or identify questions the confederates may need to answer and how to behave during the scenario when situations arise that are not necessarily identified in the script. If time allows, have the actor playing the role of the learner intentionally completely mismanage the patient to ensure that all the equipment and manifestations for potentially anticipated mismanagement (wrong medications, wrong X-rays etc) are available and prepared to reflect the branch points in the written scenario. Once the rehearsal period is over, changes to the case should be added to the script to prevent having to re-discover these changes when the case is repeated with other learners in the future.

For scenarios where confederates need to cry, scream, be angry or emotionally charged, do not wait until the day of the simulation to 'see how they do'. The rehearsal period is the time to see the confederate display their emotional manifestation of the script and to allow the director to ensure its displayed in the right intensity, entering the scenario at the predetermined time during the case, and to ensure the confederate knows when to back down if the appropriate actions are manifested by the learner. A case of an accidental paediatric overdose of a child being watched by a grandparent who left her blood pressure pills out resulting in a critical overdose and subsequent paediatric resuscitation is an excellent example. It requires an effective confederate performance to increase the level of stress during the resuscitation, reflective of what will likely occur in the clinical environment. This level of fidelity is crucial as part of the stress inoculation[2] that is necessary for the training of highly skilled emergency medicine physicians who are capable of running an effective paediatric resuscitation under highly stressful conditions.

Outstanding simulation faculty make executing highly effective simulations look easy as a result of well-thought-out, well-written and well-rehearsed cases. It is hypocritical for simulation faculty to preach 'deliberate practice[3]' to their learners yet not take the time to ensure that they are putting the best product forward by deliberately practising the scenarios for their learners, thereby ensuring the highest quality of simulation within the resources available to them. This concept has been a fundamental theory used in the framing of curricula for trainees in graduate medical education for almost a decade now, especially with simulation faculty. However, time and time again, as seasoned simulation faculty member's, we have witnessed simulation leadership at various institutions execute simulations for their learners without any interactive team rehearsal period prior to execution of their high-fidelity simulations. For basic simulations, done frequently, this rehearsal period may not be necessary. However, when executing new monthly cases as part of a larger curriculum, this becomes critical for effective execution of simulations, especially for learners nearing the completion of their training requiring complex case management and leadership. If you are in the business of performing average simulations and you have accepted your place in the sea of mediocrity, rehearsal, especially to this level of detail, will never be for you. However, if you have a strong desire to perform excellent simulations, rehearsal is a must, every time, even for cases done numerous times before.

Contributors All authors made substantial contributions to the conception or design of the work; drafted the work or revised it critically for important intellectual content; gave final approval of the version to be published; agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors. No funding.

Competing interests None declared.

Provenance and peer review Not commissioned; internally peer reviewed.

Data sharing statement Not applicable. No data in this editorial.

To cite Ahmed RA, Hughes PG, Gardner AK. *BMJ Stel*2018;**4**:157–158.

Received 17 April 2018
Accepted 7 May 2018
Published Online First 29 May 2018

BMJ Stel 2018;**4**:157–158.
doi:10.1136/bmjstel-2018-000343

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